

United States Government

Department of Energy

memorandum

DATE: November 12, 1996

REPLY TO
ATTN OF: EH-53 (R. Sastry, 301-903-4664)

SUBJECT: Chemical Safety Concerns / Search of Occurrence Reporting and Processing System (ORPS)

TO: Distribution

Significant Occurrences

October, 1996**Class 1:**

None

Class 2:Hanford, N-Reactor - employee receives caustic burns during acid tank removal**Additional:**

Three fires took place: involving hot tar at Sandia, an aerosol smoke generator at Hanford, and a laboratory oven at Savannah River. There were three occurrences involving pressurized waste drums at INEL, Portsmouth Gaseous Diffusion Plant, and Hanford. There was an ongoing acid release at LBNL that damaged the paint on a number of automobiles; potential health effects are being evaluated.

These occurrences are further described below with additional information, including Occurrence Report (OR) numbers, provided in the [Attachment](#).

A search of ORPS for occurrences having chemical safety relevance conducted for the month of October 1996 produced 32 reports representing potential chemical safety concerns. These occurrences are listed in the [Attachment](#). One occurrence was categorized as an "Emergency"; seven occurrences were categorized as "Unusual"; one was "Cancelled"; and the remainder identified as "Off-normal". The Office of Environmental Management (EM) was Cognizant Secretarial Office (CSO) for 14 occurrences; Defense Programs (DP) and Energy Research (ER) each reported five; Nuclear Energy (NE) had four; Uranium Enrichment (UE) three; and Fossil Energy (FE) one. This CSO designation may change after the distribution of this monthly memorandum, and this change will be reflected in Quarterly and Annual Reviews.

In order to determine which chemical safety occurrences represent more important (significant) Levels of Concern, a classification scheme has been developed. The definitions of these Classes are as follows:

Class Occurrences characterized by an injury or exposure requiring hospital treatment, or confirmed,
1 severe environmental effect; also occurrences that had the potential to cause these effects with

all safety barriers down, except, for example, that no one was nearby to be injured or exposed, or escaped in time, or the climatic conditions were favorable;

Class 2 Occurrences characterized by minor injury (first aid) or exposure, or minor environmental damage; also occurrences that were near misses (where one additional safety barrier remained to prevent consequences) to those in Class 1;

Class 3 Potential precursors to the occurrences in Class 1 or 2;

Class 4 Minor occurrences such as leaks, spills, or releases, which may be significant in their frequency of occurrence though not in their consequences.

There was one Class 2 occurrence reported during October. There were 22 Class 3 occurrences. Among the Class 3 occurrences, in addition to those noted previously, were a USQ at Paducah Gaseous Diffusion Plant involving a conflict between evacuation policy and required operator actions, and evacuations at PETC due to petroleum odor and at Rocky Flats due to a (false) hydrofluoric acid alarm. There was an exclusion area violation at Los Alamos, one of several in recent months. BNL reported three hydrocarbon spills including one instance involving an attempted coverup of the spill; also Freon was detected (actually tasted in the water by employees) in a potable water line at BNL. There were three occurrences involving steam/water leaks at Paducah and Portsmouth.

Summary of Class 2 Occurrence:

Employee Burned by Sodium Hydroxide (EM): (RL--BHI-NREACTOR-1996-0018) On October 3, 1996, an employee handling scrap brushed his arm against some residue on the scrap and noticed an itching and burning sensation. The scrap, certified "clean", was from sulfuric acid tanks that had been demolished. The employee rinsed his arm with water and the burning stopped. The employee subsequently reported the incident to his manager who then transported the employee to Kennewick General Hospital. The hospital diagnosed the employee's condition as contact dermatitis (minor caustic burns), told the employee to keep the area of the minor burn clean and dry, and returned the employee to full duty without any medical treatment. Prior to tank demolition the unflushed piping was to be removed and disposed of as waste. This section of piping was overlooked possibly because it was covered with tank insulation during the planning phase. The tank with the piping attached was demolished. The pipe was crimped during the cutting phase and no one observed any material in the pipe or running from the pipe while loading. It is also believed that, in transport, the vibration of the load was such that it allowed the material in the pipe to shake out of the pipe.

This event, significant in the light of all the demolition work taking place across the DOE complex, highlights (as noted in the OR) the need to conduct detailed jobsite walkdowns before and during a project to identify all potential problem areas. Issues resulting from these walkdowns should be addressed in the work package and procedures as well as discussed at prejob and daily meetings. Material to be excessed or recycled that formerly contained hazardous materials must be thoroughly cleaned and verified as well as visually inspected.

An additional lesson learned of general interest is well expressed in a report of some minor spills that took place during liquid transfer operations at Rocky Flats (RFO--KHLL-LIQWASTE-1996-0004): "It is extremely important to become thoroughly and comfortably familiar with any equipment prior to actual usage ... to prevent possible health, safety or environmental problems. Site personnel must continue to maintain a 'questioning/inquisitive' attitude to anticipate any potential problems that may arise prior to and during actual operation."

Additional information regarding these occurrences and others will be discussed in an upcoming Quarterly Review. As occurrence reports are finalized, lessons learned will be communicated.

[Signature of]

Rama Sastry
Office of Field Support

[Attachment](#)

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